<center>**REMARKS**</center>

Rejection of claims 1-2 and 9-13 under 35 U.S.C. §103(a)

The Examiner rejected claims 1-2 and 9-13 under 35 U.S.C. §103(b) as being unpatentable over Doing in view of Parady. Applicant asserts the cited art does not teach or suggest the claimed invention.

Claim 1

For the claim limitation "swaps instructions stored in the first instruction buffer with instructions stored in the second instruction buffer", the Examiner cites Parady (col. 5, lines 38-43 and Fig. 7). The cited section of Parady does not support the Examiner's argument, and in fact, Parady teaches against the Examiner's interpretation of Parady and the Examiner's combination of the cited art. Parady teaches an apparatus for switching between threads of a program. As shown in Figure 1, the different threads are in instruction buffers 102-108 that supply instructions through a dispatch unit 28 to execution units 41. Each thread has an associated register file 48.

In the alternative embodiment shown in Figures 6 and 7, there are shadow registers in the register file that is associated with the integer execution unit. With reference to the register file 184 and the shadow register files 186, Parady teaches the "data switch 192 can be used to **route data** to and from the shadow registers" (col. 5, lines 40-41, emphasis added). Parady further teaches in the preceding paragraph that "it may be more economical to swap the thread data in and out of the four, single or dual-ported shadow register files" (col. 5, lines 32-34). Thus the sections of Parady that the Examiner has relied on for teaching to swap instructions actually teaches to swap data. The cited sections do not in any way suggest to swap instructions. The shadow registers hold thread data, not instructions. This is further illustrated in Figure 6, where the register file 184 and shadow register files 186 are in the integer execution unit 156.

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These registers are not part of the prefetch and dispatch unit 150 that contains the instruction buffers. To assume the shadow registers are swapping instructions is not consistent with the overall teachings of Parady. The Examiner has improperly interpreted Parady. Parady does not teach or suggest the invention as argued by the Examiner. The Examiner has failed to establish a prima facie case. Reconsideration is respectfully requested.

Claim 2

Claim 2 depends on claim 1, which is allowable for the reasons given above. Claim 2 is therefore allowable as depending on an allowable independent claim.

Claim 9

In the rejection of claim 9, the Examiner cites column 7, line 52 to column 8 line 3 of Doing for the claim limitation of swapping information stored in the first instruction buffer with information stored in the second instruction buffer. The cited section of Doing describes changing the active thread. While it is evident that Doing does swap the contents of some registers that are associated with the thread buffer, the contents of the thread buffer are not swapped. The express teachings of Doing indicate the contents of the sequential hold buffer and the thread switch buffer are not swapped. In Doing, when there is a thread switch, the inactive thread becomes the active thread, and the active thread becomes the inactive thread as taught on column 14, lines 22 through 24. When a thread is switched from inactive to active, there is no swapping or moving of instructions between the sequential hold buffer and the thread switch buffer. To the contrary, the decode/dispatch logic 206 simply chooses a different buffer as the source of the next instruction.

In contrast to Doing, the claims as amended clearly distinguish that the information that is swapped in the instruction buffers is instructions. As described above with reference to claim 1, Parady also does not teach or suggest to swap the instructions.

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Doing and Parady do not teach or suggest to swap the instructions in the instruction buffers as claimed herein. The Examiner is respectfully requested to withdraw the rejection of claim 9.

Claims 10-13

Claims 10-13 depend on claim 9, which is allowable for the reasons given above. Claims 10-13 are therefore allowable as depending on an allowable independent claim.

Rejection of claims 3-6, 8, 14-19, 21 and 22 under 35 U.S.C. §103(a)

The Examiner rejected claims 3-6, 8, 14-19, 21 and 22 under 35 U.S.C. §103 as being unpatentable over Doing in view of Parady and further in view of Shoemaker. Applicants assert the cited art does not teach or suggest the invention as claimed.

Claims 3-6

Claims 3-6 depend on claim 1, which is allowable for the reasons given above. Claim 3-6 are therefore allowable as depending on an allowable independent claim. The Examiner adds the Shoemaker reference for the concept of multiple threads (more than 2). The arguments for claim 1 are included here by reference. In Shoemaker, the multiple threads are threads that are all available to be selected (paragraph 6). These multiple threads could be considered as stated by the Examiner, simply replicated portions of Doing. However, the claimed invention is not simply replicated portions of Doing. In the invention of claim 3, the primary threads swap instructions with secondary threads when there is a stall. The cited art does not teach or suggest swapping instructions for threads from a secondary thread to a primary thread. Reconsideration is respectfully requested.

<u>Claim 8</u>

Claim 8 was previously amended to add the limitation that the instructions from the backup instruction buffer are swapped with instructions in the primary register. This limitation is similar to the limitations discussed above for claim 1 and those arguments are incorporated here. Reconsideration is respectfully requested.

<u>Claims 14-17</u>

Claims 14-17 depend on claim 9, which is allowable for the reasons given above. Further, claims 14-17 include the limitations discussed with reference to claims 3-6 discussed above and those arguments are included here. Claims 14-17 are therefore allowable as depending on an allowable independent claim and for the reasons stated above. Reconsideration is respectfully requested.

<u>Claim 18</u>

Claim 18 includes the limitations discussed with reference to claims 3-6 and those arguments are included here. Claim 18 is therefore allowable for the reasons stated above. Reconsideration is respectfully requested.

<u>Claim 19</u>

Claim 19 depends on claim 18, which is allowable for the reasons given above. Claim 19 is therefore allowable as depending on an allowable independent claim.

<u>Rejection of claims 7 and 20 under 35 U.S.C. §103(a)</u>

The Examiner rejected claims 7 and 20 under 35 U.S.C. §103 as being unpatentable over Doing in view of Parady in view of Shoemaker and further in view of Levy. Applicants assert the cited art does not teach or suggest the claimed invention as amended herein. Claims 7 and 20 depend on claims 5 and 18 respectively, which are

allowable for the reasons given above. Therefore claims 7 and 20 are allowable as depending on an allowable claim. Reconsideration is respectfully requested.

Rejection of claims 7 and 20 under 35 U.S.C. §103(a)

The Examiner rejected claims 7 and 20 under 35 U.S.C. §103 as being unpatentable over Doing in view of Shoemaker and further in view of Parady. Applicants assert the cited art does not teach or suggest the claimed invention as amended herein. Claims 7 and 20 depend on claims 5 and 18 respectively, which are allowable for the reasons given above. Therefore claims 7 and 20 are allowable as depending on an allowable claim. Reconsideration is respectfully requested.

Conclusion

In summary, none of the cited prior art, either alone or in combination, teach, support, or suggest the unique combination of features in applicants' claims presently on file. Therefore, applicants respectfully assert that all of applicants' claims are allowable. Such allowance at an early date is respectfully requested. The Examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

Respectfully submitted,

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